

Study finds 'no-drill' dentistry stops tooth decay

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The white patches are signs of early decay that can be stopped and reversed before they become cavities (brown patch on tooth on the right). Credit: University of Sydney

A University of Sydney study has revealed that tooth decay (dental caries) can be stopped, reversed, and prevented without the need for the traditional 'fill and drill' approach that has dominated dental care for decades.

The results of the seven year study, published today in *Community Dentistry and Oral Epidemiology*, found that the need for fillings was

reduced by 30 to 50 per cent through preventative oral care.

"It's unnecessary for patients to have fillings because they're not required in many cases of [dental decay](#)," said the study's lead author, Associate Professor Wendell Evans of the University of Sydney.

"This research signals the need for a major shift in the way [tooth decay](#) is managed by dentists—dental practice in Australia needs to change. Our study shows that a preventative approach has major benefits compared to current practice.

"For a long time it was believed that tooth decay was a rapidly progressive phenomenon and the best way to manage it was to identify early decay and remove it immediately in order to prevent a [tooth surface](#) from breaking up into cavities. After removing the decay, the affected tooth is then restored with a filling material—this process is sometimes referred to as 'drilling and filling'.

"However, 50 years of research studies have shown that decay is not always progressive and develops more slowly than was previously believed. For example, it takes an average of four to eight years for decay to progress from the tooth's outer layer (enamel) to the inner layer (dentine).

"That is plenty of time for the decay to be detected and treated before it becomes a cavity and requires a filling."



Credit: AI-generated image ([disclaimer](#))

Professor Wendell Evans and his team developed the Caries Management System (CMS) - a set of protocols which cover the assessment of decay risk, the interpretation of dental X-rays, and specific treatment of early decay (decay that is not yet a cavity).

The CMS treatment 'no-drill' involves four aspects:

1. Application of high concentration fluoride varnish by dentists to the sites of early decay
2. Attention to home tooth brushing skills
3. Restriction of between-meal snacks and beverages containing added sugar

4. Risk-specific monitoring.

"The CMS was first tested on high risk patients at Westmead Hospital with great success," said Professor Evans.

"It showed that early decay could be stopped and reversed and that the need for drilling and filling was reduced dramatically.

"A tooth should be only be drilled and filled where an actual hole-in-the-tooth (cavity) is already evident," he said.

The CMS treatment was then tested in general dental practices in New South Wales and Australian Capital Territory. The Monitor Practice Program (MPP), funded by the National Health and Medical Research Council of Australia (NHMRC), confirmed that after seven years, decay risk was substantially reduced among the CMS patients and their need for fillings was reduced by 30 to 50 per cent compared to the control group.

"The reduced decay risk and reduced need for fillings was understandably welcomed by patients," Professor Evans said. "However, patients play an important role in their treatment. This treatment will need a partnership between dentists and patients to be most successful."

Provided by University of Sydney

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